US Army Maintenance

FleetSight

Aging Equipment Fleets

Louis E. Alfeld, ScD

(C) Decision

What is the problem?

- Aging fleets of weapons systems
- Changing technologies
- High cost of operation and maintenance
- Many “what-if?” scenarios

- Long-term strategic solution needed

Why is the problem important?

- Readiness depends upon effective maintenance
- Maintenance costs rise as weapons systems age and obsolesce
- Maintenance reform promises huge savings

- High risk of declining performance

How does *FleetSight* help?

- Integrates wide range of data into a single, intelligible model
- Identifies actions to lower costs and increase availability
- Quickly calculates consequences of unexpected events

- Lowest cost, lowest risk solution

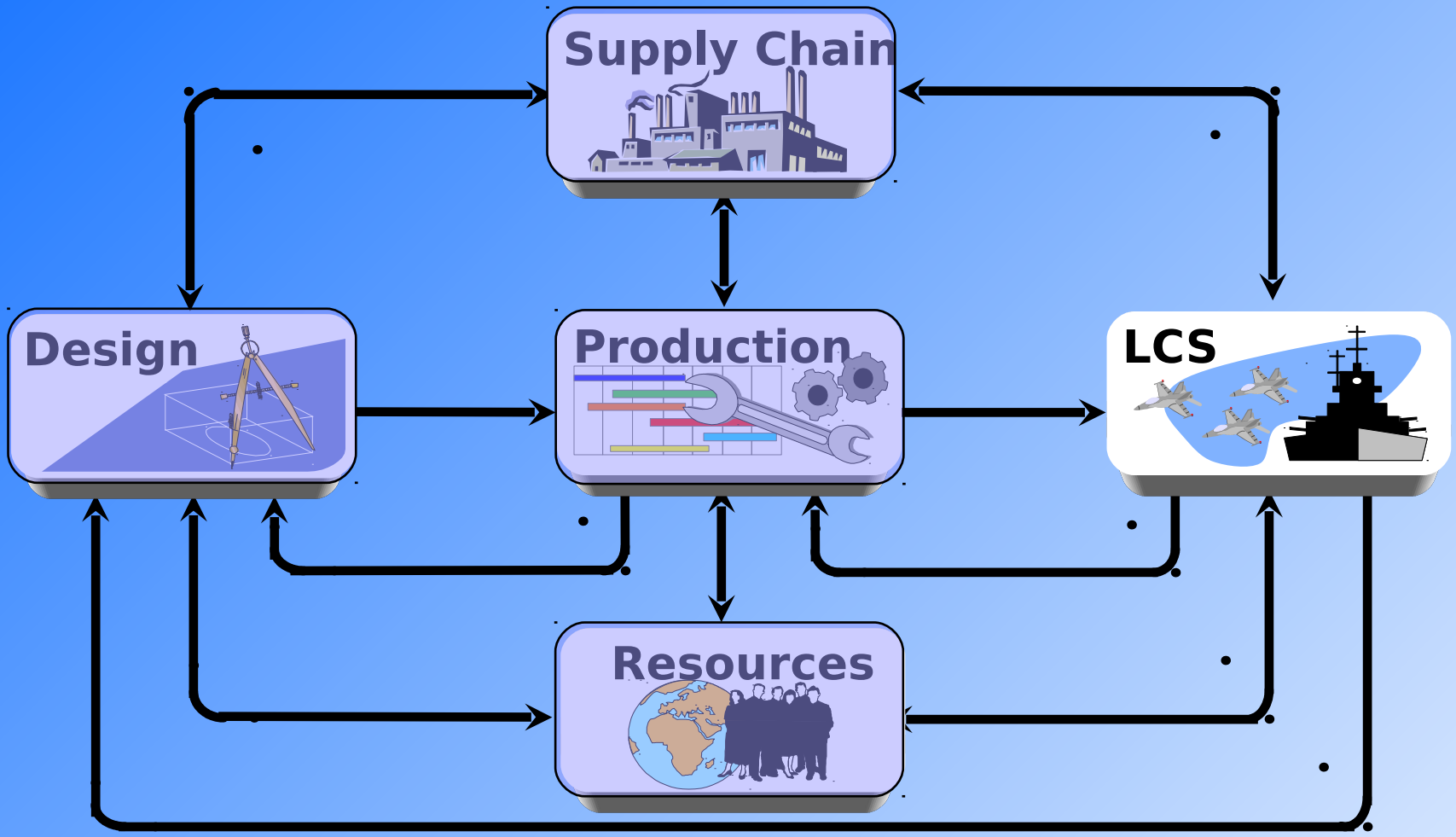
(C) Decision

Agenda

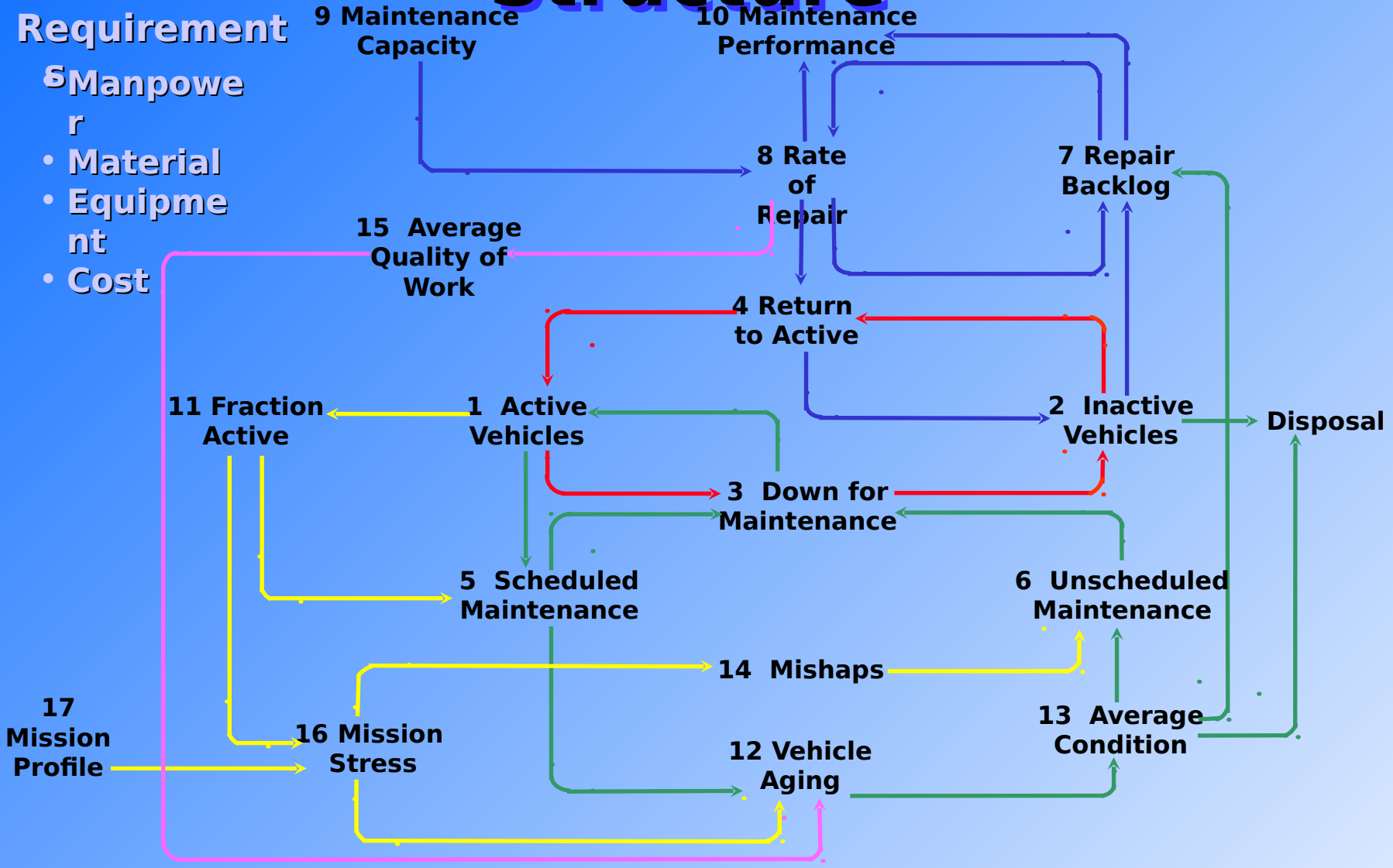
- Modeling methodology
- FleetSight illustration
  - Retirement
  - Replacement
  - Upgrade

(C) Decision

Five *ADEPT* Modeling Tools



FleetSight Feedback Structure



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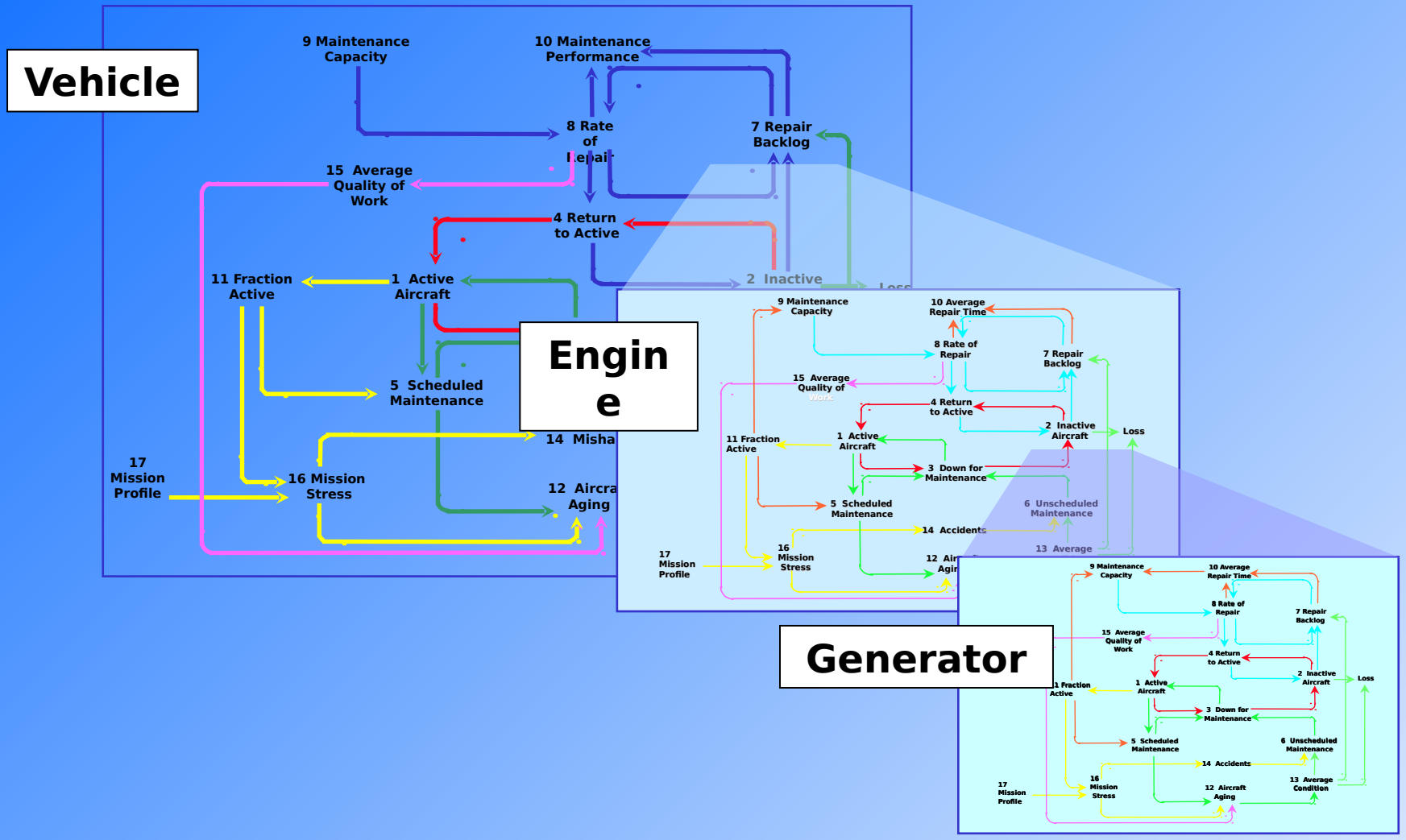
FleetSight WBS Hierarchy



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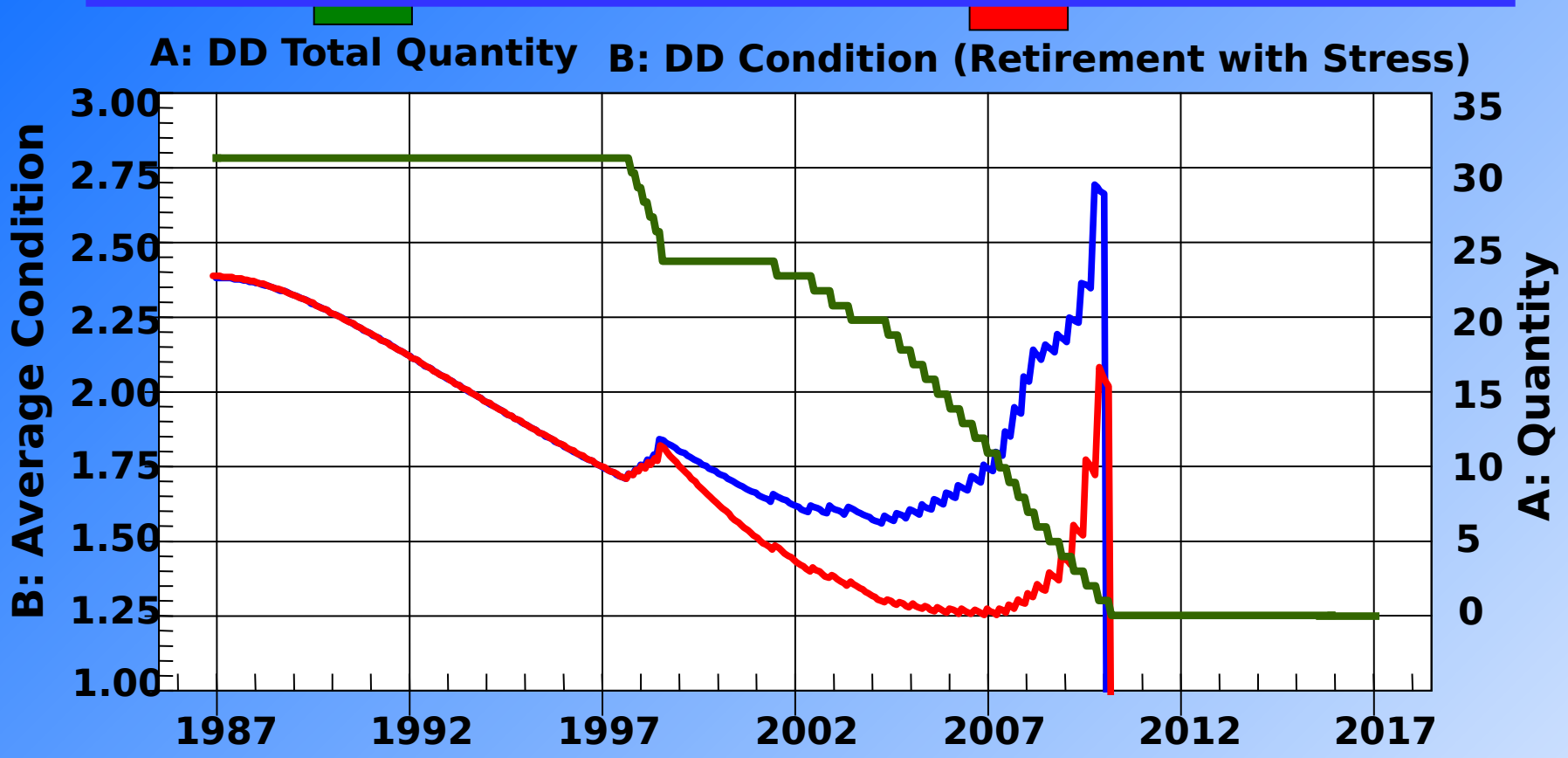
FleetSight Capabilities

- FleetSight provides defendable budget and capability projections
- FleetSight quantifies alternative “what-if?” scenarios to lower risk
- FleetSight justifies recapitalization actions based on future savings

(C) Decision

DD-963 Class Retirement



Additional Stress Degrades Combat Readiness

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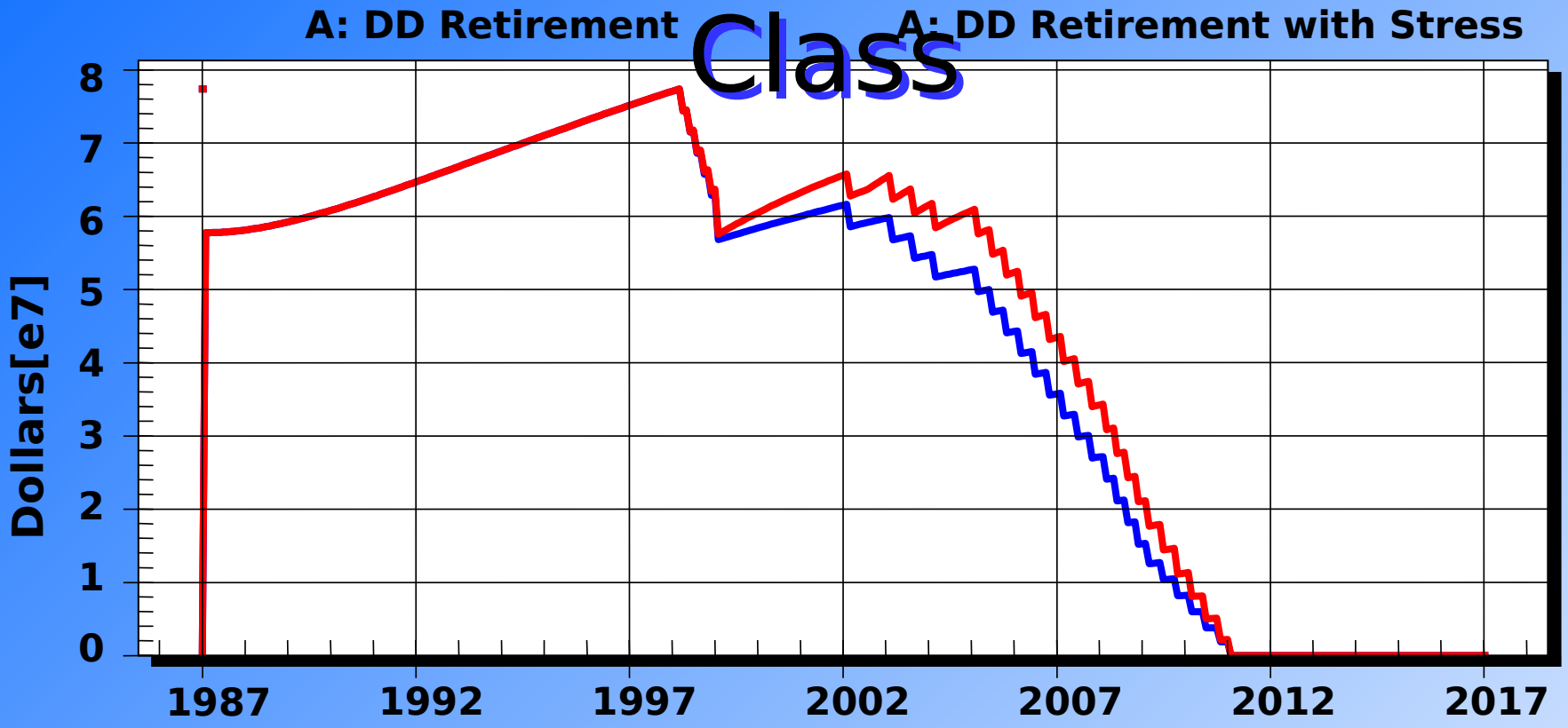
DD-963 Class Retirement: Monthly Cost of DD-963 Class



Additional Stress Adds $700 Million over 11 Years

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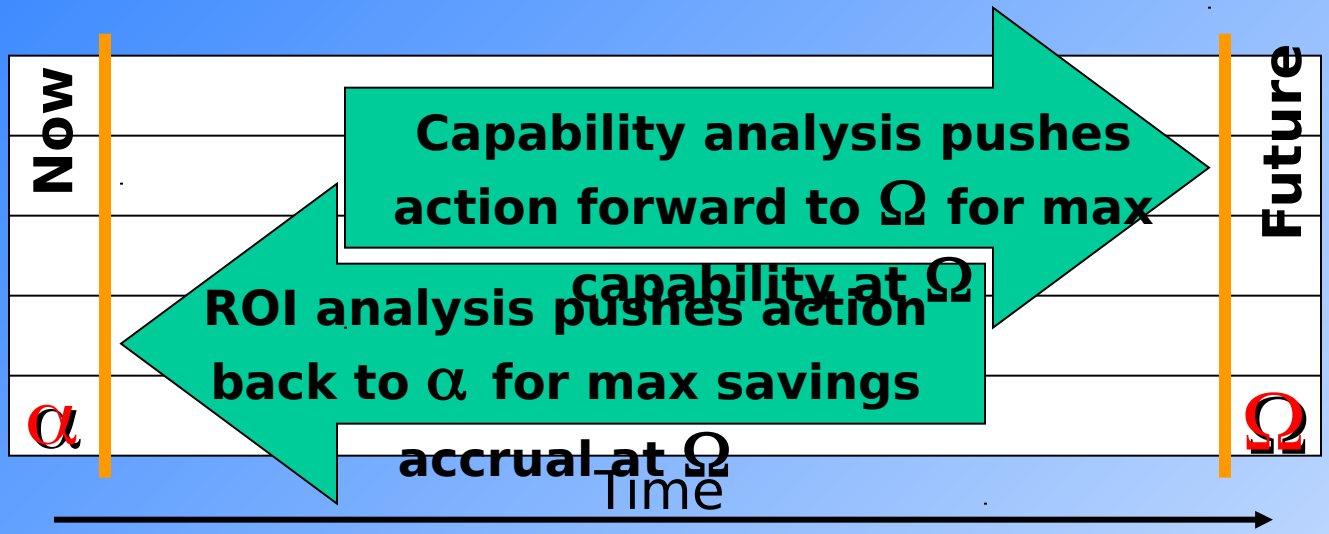
(C) Decision

Combat Readiness and ROI Tradeoffs

For a given investment upgrade schedule for any ship or system:

- ROI will reach max at some future date Ω
- Aging will erode capability gains


Now
Future
Capability analysis pushes action forward to Ω for max capability at Ω
ROI analysis pushes action back to α for max savings accrual at Ω
α
Ω
Time

How much to invest . . . And when?

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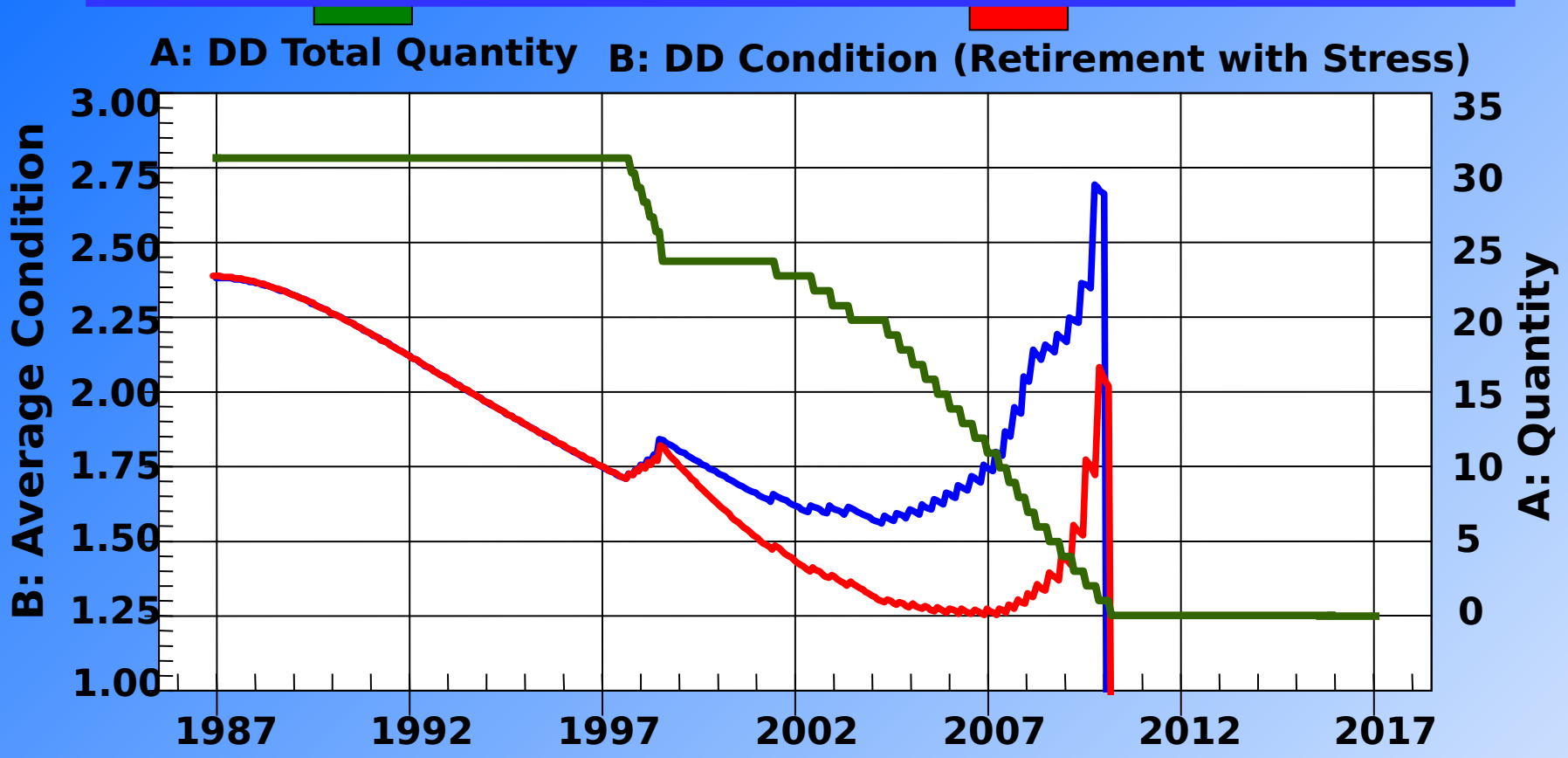
(C) Decision

DD-963 Class Retirement



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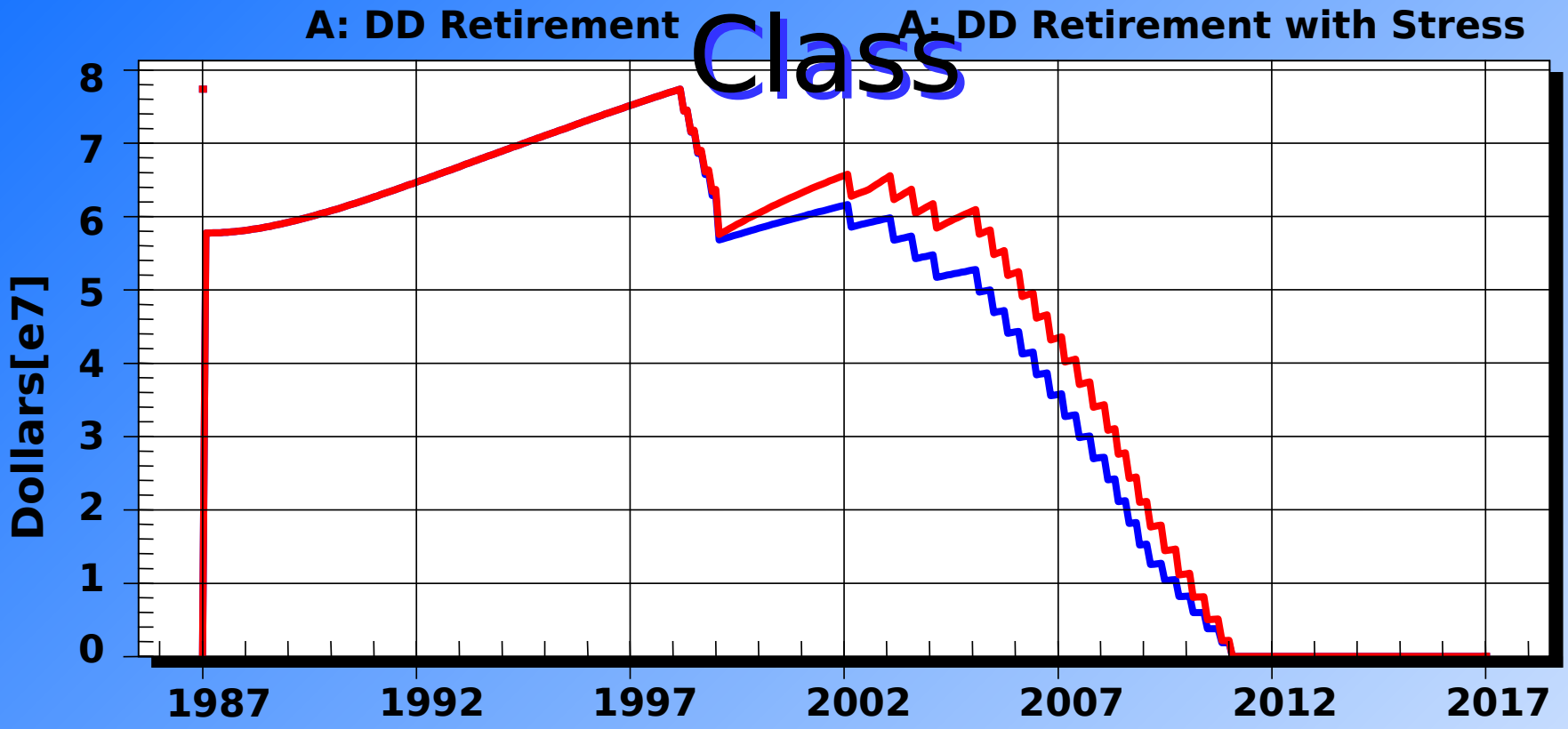

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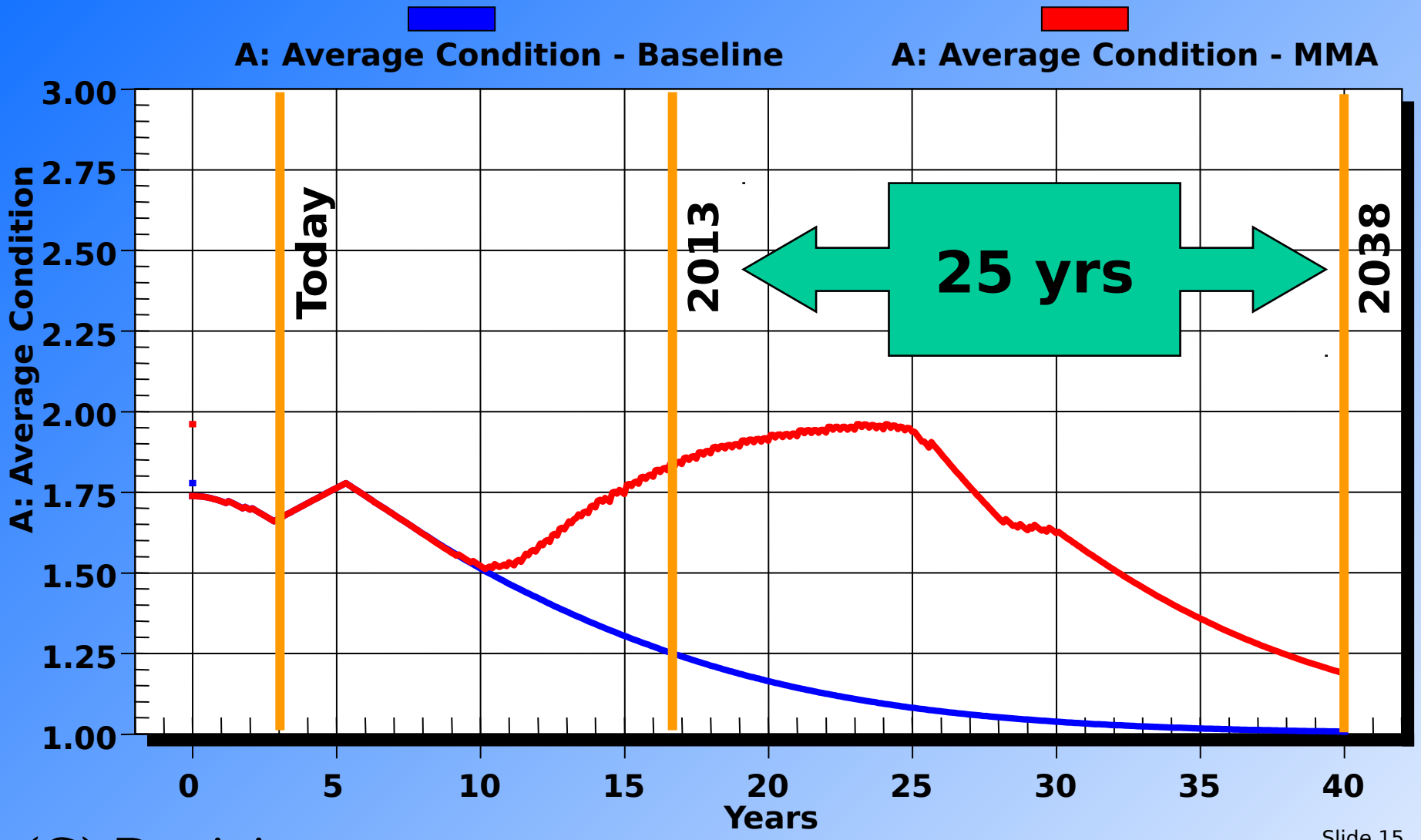
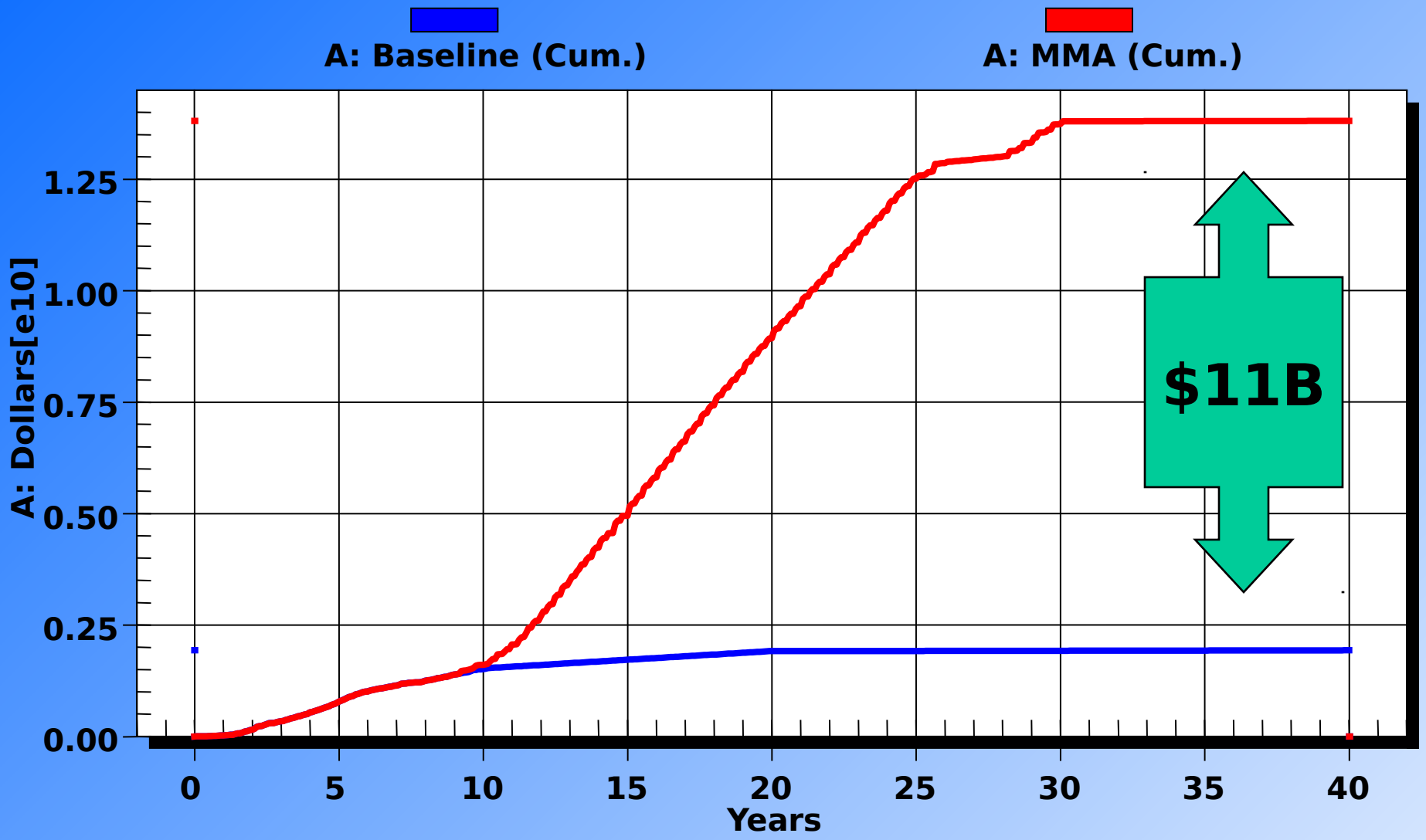
(C) Decision

P-3 Average Condition



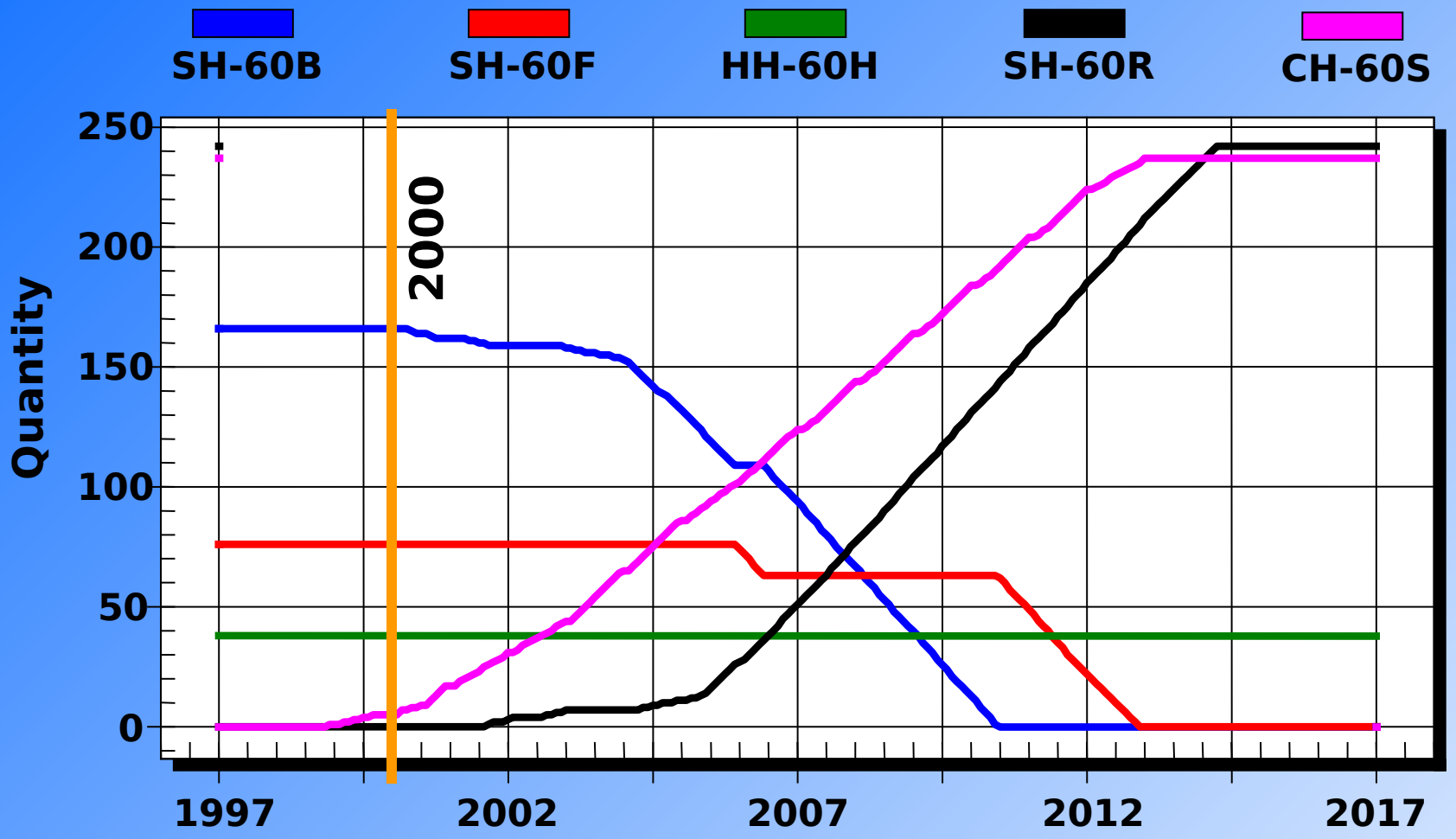
(C) Decision

Comparison - Cumulative Cost



(C) Decision

H-60 Quantities



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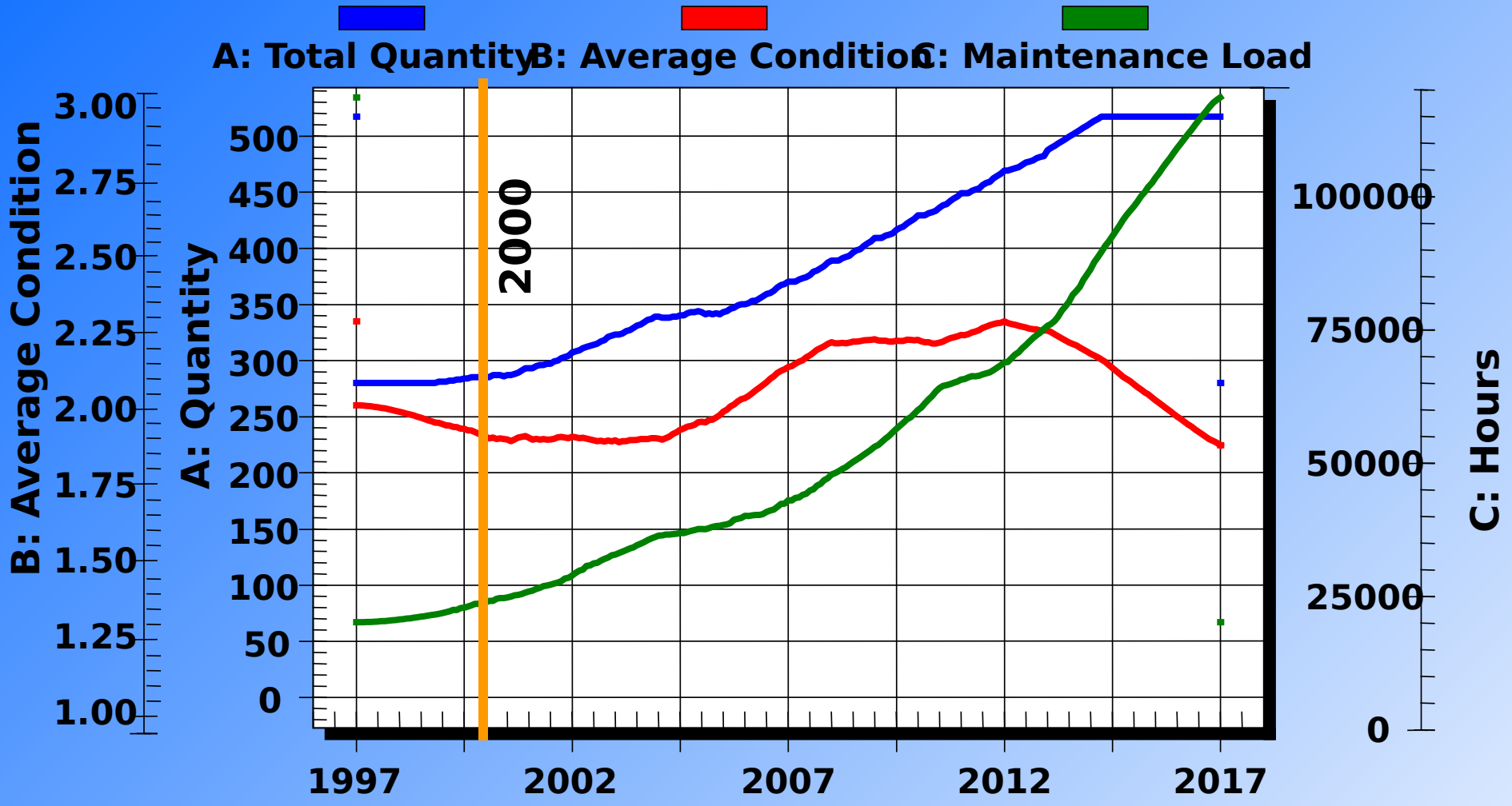
(C) Decision

H-60 Fleet



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(C) Decision

FleetSight Data Integration

- **Systems**
  - **WBS**
  - **Attributes**
  - **Aging Impacts**
  - **Dependencies**
- **Fleets**
  - **Age Distribution**
  - **Acquisitions**
  - **Retirements**
  - **Losses**
  - **Operation Hours**
  - **Mission Stress**
  - **Tasks**
- **Facilities**
  - **Labor**
  - **Stations**
  - **Material**
  - **Direct Costs**

(C) Decision

FleetSight

- Traces consequences of “what-if?” assumptions and actions
- Quantifies cost, schedule and performance trade-offs
- Clearly defines problems, assumptions, and policies
- Calculates activity-based costs (ABC)

Strategic LifeCycle Management